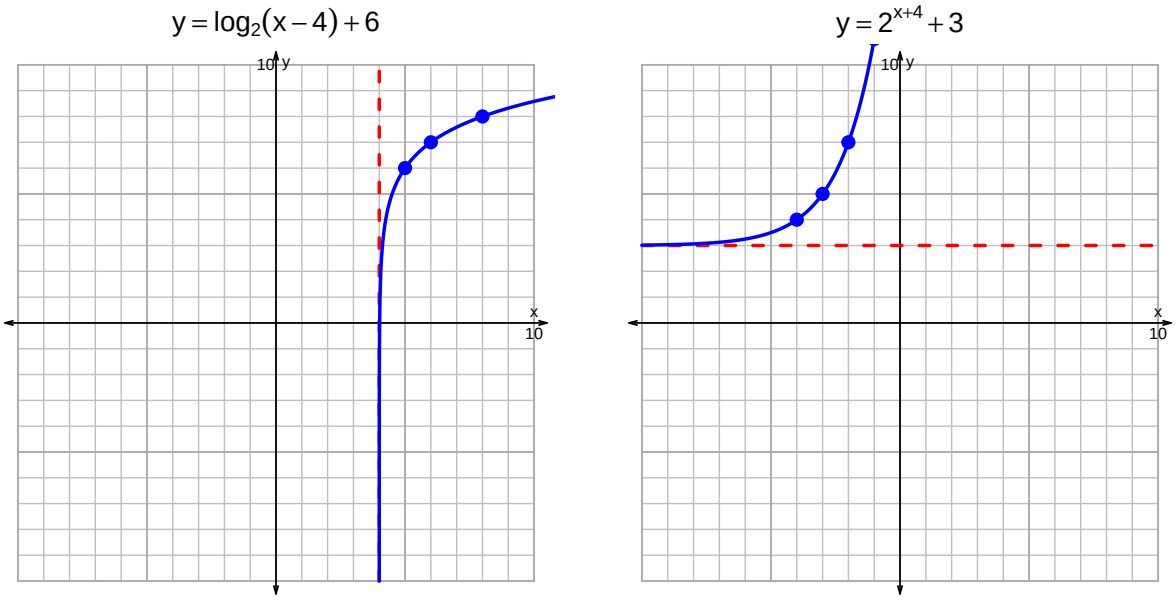
Name: Date:

S18QUIZ: EXP LOG (SLTN v240)

1. Graph $y = \log_2(x-4)+6$ and $y = 2^{x+4}+3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-23 = \left(\frac{-4}{3}\right) \cdot 2^{-7t/5}$$

Divide both sides by $\frac{-4}{3}$.

$$\frac{23 \cdot 3}{4} = 2^{-7t/5}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{23 \cdot 3}{4}\right) = \frac{-7t}{5}$$

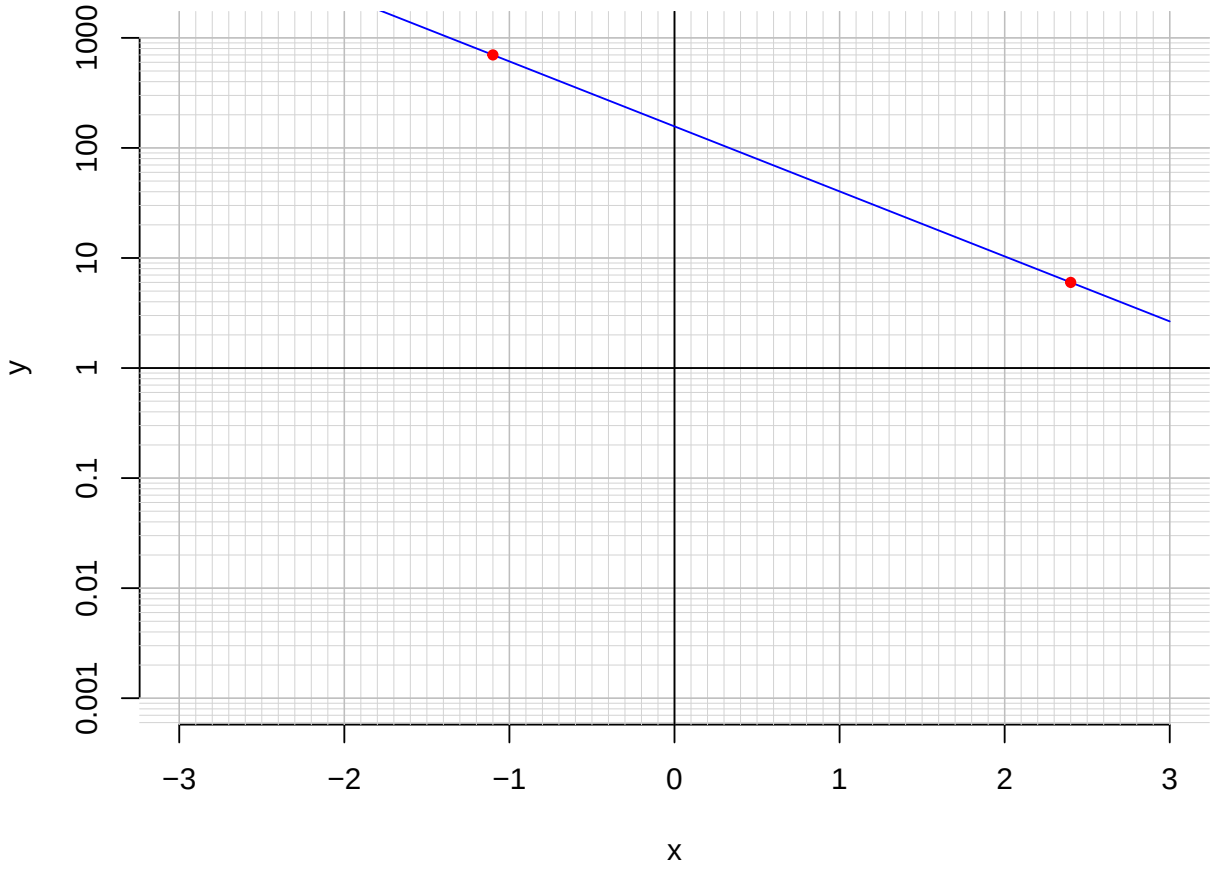
Divide both sides by $\frac{-7}{5}$.

$$\frac{-5}{7} \cdot \log_2\left(\frac{23 \cdot 3}{4}\right) = t$$

Switch sides.

$$t = \frac{-5}{7} \cdot \log_2\left(\frac{23 \cdot 3}{4}\right)$$

3. An exponential function $f(x) = 157 \cdot e^{-1.36x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(2.4)$.

$$f(2.4) = 6$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{1.36} \cdot \ln\left(\frac{x}{157}\right)$$

c. Using the plot above, evaluate $f^{-1}(700)$.

$$f^{-1}(700) = -1.1$$